

**Bird Ingestion Phase II Task Group
Bird Management Recommendation**

I - Recommendations

The Bird Ingestion Phase II Task Group, as tasked by ARAC, issues the following recommendations to address concerns regarding the hazard to commercial transport aircraft from large flocking birds.

Recommendation 1: ICAO and national regulators should establish regulations that require airports to develop and implement a bird control plan that includes control of the numbers of flocking bird species both on and adjacent to their property. National laws should be provided by the countries concerned to enable airports to carry out these activities.

Recommendation 2: National regulators should prevent the establishment of sites that are attractive to birds on, or in the vicinity of, airports.

Recommendation 3: Incentives need to be strengthened for airport operators and local authorities to take the necessary actions to reduce/eliminate hazardous wildlife and hazardous wildlife attractants on or near their airport.

Recommendation 4: Aviation safety regulators need to lead an effort to inform the public of the hazard to commercial air safety caused by wildlife.

Recommendation 5: Countries should establish mechanisms to review populations of flocking bird species over 4 lbs (1.8 kg) and then to manage populations in consultation with conservation and other interests to levels consistent with acceptable flight safety standards.

II - Summary

These recommendations are issued to address a potential hazard to commercial transport category aircraft. The vast majority of aircraft engines currently in service were designed and tested at a time when the populations of large flocking bird species were far lower than they are today. Engines were, therefore, not designed to withstand the ingestion of large birds such as the Snow Goose or the Canada Goose. Populations of these large birds have now increased to the point where they constitute an increasing hazard to these engines. Forecast continued population growth in many large bird species means that this hazard will increase further unless corrective action is taken.

Available data from transport aircraft engine ingestions to date shows that a significant number of the ingestions from encounters with large flocking birds occur outside the boundaries of airport control. This means that reducing the hazard from large flocking birds by control of birds on airport grounds only may not be sufficiently effective.

Following a Snow Goose flock encounter with a DC-9 aircraft, that resulted in loss of power from both of the aircraft's engines, and a recent B757 encounter with a flock of Starlings, the NTSB recognized the potential hazard to aviation posed by flocking birds and issued a series of 10 Safety Recommendations on November 19, 1999 to address the flocking bird hazard around airports. These recommendations included using existing technology and exploring future technologies that could be applied to protecting aircraft from bird ingestions in the vicinity of airports. The recommendations also included the statement:

"... Various Federal agencies involved in aviation and wildlife protection have different missions and, sometimes, conflicting responsibilities and mandates. For example; the goals of improving aviation safety and promoting wildlife conservation through habitat protection, restoration, and enhancement sometimes conflict. The Safety Board concludes that the various agencies need to meet to consider a unified approach to the problem of bird strike hazards and to reconcile their different agendas. Therefore, the Safety Board believes that with representatives from the USDA, the Department of the Interior, the Department of Defense, and the U.S. Army Corps of Engineers, the FAA should convene a task force to establish a permanent bird strike working group to facilitate conflict

resolution and improve communication between aviation safety agencies and wildlife conservation interests..."

These words of the NTSB recommendation acknowledge the conflicting priorities of wildlife conservation measures to enhance bird populations and the requirement to balance conservation with other needs. It is the interpretation of the Bird Ingestion Phase II Task Group that these words provide for the consideration of controlling populations and the conclusion of this Task Group that reduction and control of populations of Canada geese and Snow geese should now be seriously considered.

The recommendations and the supporting discussion are primarily intended to address certain species of geese. However, it is not the intent to limit the scope of the recommendations to geese or other large birds. It should be recognized that any species of flocking bird can become a hazard if its populations are allowed to grow too large and/or movements around airports are allowed to any significant degree. Recent revisions to engine certification standards require new engines to better tolerate birds, such as gulls or smaller, and although this should reduce the hazard from smaller birds, it does not eliminate it.

III - Discussion

Current data indicate a rise in the population of the Snow goose and the Canada goose within the United States and other countries. The rise in population is reported to be exponential over the past 15 years. It is not clear when natural biological processes will begin to act to limit this population growth and sustain the population at a predictable level. Without any foreseeable natural elements limiting population growth, the best method currently available to predict future populations is to extend the historical growth rate mathematically.

This rise in the population of certain geese, along with the increase in commercial air transport traffic, represents a threat to air transportation because of the increased exposure that commercial aircraft will have to encounters with geese. The encounters become a potential hazard because geese fly in flocks. An encounter between an aircraft and a flock of these birds increases the possibility of multiple engine power loss plus other aircraft complications. In addition, there will likely be an increase in air traffic as public demand for air transportation is still expected to increase.

The industry projection is that aviation traffic will increase by approximately 40% within the next 10 years, despite recent events.

It has been shown by studies that the population of large flocking birds in the 1970-1980 time period was at a level that encounters with flocks were rare and the probability of multiple engine involvement was extremely remote. At the current goose population levels, the rate of aircraft encounters and potential for multiple engine involvement is no longer extremely remote. At the current rate of growth, the goose population will double every 5 to 7 years. With this forecast population growth, coupled with the projected increasing rate of aircraft traffic, the probability of multiple engine power loss and aircraft loss in the future will become unacceptable.

Efforts are being made to consider the feasibility of improving the tolerance of new aircraft engine designs to encounters with larger birds. Any tolerance improvements will not be timely in terms of affecting the projected hazard to air safety over the next 10 to 20 years as these improved products will enter service at a relatively slow rate. To revise certification standards, design new engines, design new aircraft, and get the new engines and aircraft into service in sufficient quantities for them to make a statistical difference will take more than 20 years. Also, there are approximately 14,000 transport category aircraft currently flying approximately 20,000,000 flights per year. These aircraft utilize engines that were designed as far back as the 1970's when the population of geese was at a level such that there was no significant measured threat from large flocking birds. The aircraft with these engines will continue to fly for the next 10-20 years.

For these reasons the Bird Ingestion Phase II Task Group recommends that the population of Snow Geese and resident Canada Geese around airports be reduced and their populations be controlled thereafter to levels that are consistent with an acceptable risk to aviation safety. This recommendation recognizes that there are current laws in the U.S. protecting migratory birds that initiated from conservation acts as early as 1917. It is the intent of this recommendation that conservation laws be updated to reflect the current status of large flocking bird populations, and that control of populations of certain birds be carried out, where necessary, in harmony with sensible conservation measures. This approach will insure that bird populations do not become excessive and a mutually protected environment is provided for the birds and the flying public.

13 November, 2001